

## Claims

1. A roller screw comprising:

a screw shaft formed, on an outer peripheral surface thereof, with a spiral roller rolling groove having a V-shape in section;

a nut member formed, on an inner peripheral surface thereof, with a spiral loaded roller rolling groove having a V-shape in section opposing to the V-shaped roller rolling groove of the screw shaft; and

a number of rollers disposed between the roller rolling groove and the loaded roller rolling groove,

wherein a number of rollers include a roller group ( $\alpha$  group) bearing the load in axial one direction of the screw shaft and a roller group ( $\beta$  group) arranged in cross shape to be perpendicular to the axis of the  $\alpha$  group roller in a roller advancing direction and adapted to bear the load in an direction opposing to the axial one direction of the screw shaft, and each of the number of rollers has a diameter larger than a distance between a wall surface of the roller rolling groove and a wall surface of the loaded roller rolling groove which opposes to the above-mentioned wall surface.

2. A roller screw comprising:

a screw shaft formed, on an outer peripheral surface thereof, with a spiral roller rolling groove having a V-shape in section;

a nut member formed, on an inner peripheral surface thereof, with a spiral loaded roller rolling groove having a V-shape in section opposing to the V-shaped roller rolling groove of the screw shaft; and

a number of rollers disposed between the roller rolling groove and the

loaded roller rolling groove,

wherein the loaded roller rolling groove of the nut member includes a central groove section having a pitch larger than a pitch of the screw shaft and a pair of end groove sections disposed on both sides of the central groove section and having a pitch equal to the pitch of the screw shaft.

3. A roller screw comprising:

a screw shaft formed, on an outer peripheral surface thereof, with a spiral roller rolling groove having a V-shape in section;

a nut member formed, on an inner peripheral surface thereof, with a spiral loaded roller rolling groove having a V-shape in section opposing to the V-shaped roller rolling groove of the screw shaft; and

a number of rollers disposed between the roller rolling groove and the loaded roller rolling groove,

wherein the nut member is divided in an axial direction into a first nut piece and a second nut piece, and a shim is disposed between the first and second nut pieces so as to apply compression loads to the rollers for the first nut piece disposed in the first nut piece and to the rollers for the second nut piece disposed in the second nut piece.